Scheduling for Success

"If it doesn't feel right, it's time to slow things down," and, "Half the speed, twice the caution." That's fine, but we needed something concrete.

By LCdr. Scott Troyer

Two days before departing for Air Wing Fallon, the War Party of VFA-87 held a change of command. While the color guard barely had finished posting the colors, and the ink still was wet on the new SOP, we felt way behind in our preparations to make sure the detachment was successful.

The demands associated with a change of command had taken their toll. The squadron was in the heart of work-ups, a new skipper was at the helm, and, incidentally, we were the first 15-aircrew FA-18 squadron (normal complement is 18). The ceremony was Friday, and the flyoff was Sunday. With only two days remaining to focus on the tactical pinnacle of the turn-around cycle, the War Party was primed to fail in the eyes of many.

Upon arrival in Fallon, a department-head meeting was convened to discuss the hazardous detachment. The skipper addressed the statistics involving mishaps that often follow a change of command and occur during Air Wing Fallon detachments. Determined not to be another statistic, he challenged us to brainstorm how we were going to lethally and safely execute the events of Air Wing Fallon. He encouraged open discussions, and the brainstorming began with what I'll call "squishy" ways to mitigate risk. I heard, "We need to keep our heads on a swivel out there," "If it doesn't feel right, it's time to slow things down," and, "Half the speed, twice the caution." These inputs sounded great but lacked concrete, actionable direction.

It wasn't long before the new boss gave "the look"— you know, the "you're wasting my time" look. Shortly thereafter, he'd had enough and said, "Here's what I want. I want a quantitative process to write the flight schedule that provides our highest probability of mission success over the entire flight schedule and automatically identifies where the highest risk elements are in the schedule." Finally, we had some direction that wasn't "squishy."

With tasking in hand, the squadron began a joint safety-and operations-department initiative designed to create the preconditions for mission success, while also identifying risks during the writing of the daily flight schedule. The goal was to create a flight schedule that had an acceptable mix of aircrew with regard to experience, skill level, proficiency, and human factors within every element. While operations always builds a schedule with these factors in mind, the goal was to create a formalized, quantitative process that achieved more consistent results and sped the evaluation process. The process VFA-87 developed places mission-success and risk-assessment metrics on each flight event. Then, the event metric is compared to a predetermined threshold, or trigger, that, once breached, requires additional assessment.

Metrics and Thresholds

When the squadron began to look for ways to ensure mission success and identify risk on the daily

Photo by PHA Stephen Early

schedule, our primary consideration was that the analysis method be quickly and easily implemented. The last thing ops needed was yet another tracking spreadsheet requiring time and manpower—that didn't exist. The Ops O needed a way to "sanity check" the schedule without unnecessarily delaying the end product.

The process we developed assigns two separate values to each aircrew: one for mission success and another for risk. These values are based on their ability to execute a mission of average complexity. The two values assigned to each aircrew are decided upon at the end of every department-head (DH) meeting.

Mission-Success Value

The training officer starts the mission-success-value assignment process at the department-head meeting by giving a quick recap of current squadron proficiency. He then provides a preview of the complexity of future planned training. The training officer then makes his value recommendation by writing a number next to the name on the whiteboard. Discussions follow concerning each aircrew's recent flight performance. Department heads concur or make recommendations for upgrade or degrade, based on information the training officer might not have had. Individual currency and proficiency also enters into the equation. The values range from 1 (highest probability of achieving mission success) to 5 (lowest probability of achieving mission success). To achieve adequate levels of qualification in each event, all values must meet the requirements in the following chart.

Mission-Success Values

1. Must be at least SFWT Level IV (combat-division-lead) qualified.*
2. Must be at least SFWT Level IV (combat-division-lead) qualified.*
3. Must be at least SFWT Level III (combat-section-lead) qualified.*
4. No minimum qualification requirement.
5. No minimum qualification requirement.

*An aircrew's mission success value may be lower than SFWT (strike-fighter weapons and tactics)-qualification level. For instance, an SFWT level III-qualified aircrew may have a mission success value of 4.

The mission-success values are made available to the schedules officer for use in writing the daily flight schedule.

Risk Value

The risk-value-assessment portion of the DH meetings has the feel of a high-speed, human-factors council. Chaired by the safety officer, the session starts with the most junior aircrew and works its way through the commanding officer. The risk-value-assessment portion takes about 10 minutes to assign individual values. The risk values are whole numbers, ranging from 1 to 5 (with 1 being the lowest risk value). The values are based on experience, innate skill level, human factors, recent performance, and proficiency. The values are not made available to anyone else within the command. The risk-value-assignment process is QA'd by adding the sum of all values and dividing by the total number of aircrew; the average should be around 3.0. Fluctuations to that value may be a result of an influx of new aircrew, or an increase or decrease in overall squadron proficiency.

Threshold Values and Assessment

The schedules officer builds the flight schedule, using the individual aircrew-mission-success values. The goal is to make sure the sum of each aircrew's individual-mission-success value within each flight element (section or division) does not exceed the threshold value. The schedules officer also reviews the rough schedule to make sure the mission-success-threshold value has not been exceeded. Then the Ops O does the same calculation for each element, based on risk-assessment value, making sure the threshold has not been crossed.

In our squadron's numbering system, the mission-success and risk-threshold values are the same: 7.5 for a section and 12.5 for a division. For mission success, if the schedules officer is unable to schedule every element below the threshold value, it is brought to the attention of the Ops O during his review of the rough schedule. The Ops O either makes recommendations for changes or acknowledges the lower probability for mission success.

If the risk-assessment sum breaks the threshold, the Ops O then decides whether to change the lineup, implement additional controls, or just brief the commanding officer of the threshold issue before he signs the schedule. For example, an O-4, with an average skill level and proficiency for his paygrade and a 2 risk value, leading the nugget with a 5 risk value, results in an overall 7 risk value for that element. In the threshold comparison, the section maximum of 7.5 is not exceeded, so the flight element does not require additional risk assessment for scheduling purposes.

If an element exceeds the risk assessment threshold and the decision is made to implement controls, the Ops O has several ways to mitigate risk in the scheduling process. One risk control is to change the ordnance from live to heavy inert. Another control is to change the mission from low-altitude, pop-up attacks to medium-altitude, circle-the-wagons attacks. Yet another option may be to slide the schedule to the left to make sure the event lands before sunset. The takeaway is that, once the threshold is exceeded, the Ops O has the flexibility to keep the lineup unchanged, yet, mitigate risk.

Avoid Operational Paralysis

The business of naval aviation is mission success. With mission success being the requirement, the squadron starts the flight-schedule writing process by first applying mission-success values. However, this process does not mean operations *always* can avoid breaking the mission-success threshold.

I must point out that the mission-success and risk-assessment technique is not infallible. By its very nature, assessing an individual aircrew's risk level is subjective; human beings are not machines with a predictable mean-time-between-failure. Also, any attempt to rigidly apply the numerical values to the threshold may lead to unnecessary operational paralysis. Certainly, a night CAS mission may very well warrant additional mission success or risk assessment when a day FCLP, with the same aircrew, may be acceptable.

Finally, high-tempo operations often require the squadron to knowingly schedule beyond the threshold. The commanding officer does so, knowing where the lower probability for success and the higher risk elements are in the schedule, and with additional controls already in place.

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